
Etanol kot komponenta za dodajanje motornemu bencinu - Določevanje celotnega suhega ostanka (nehlapna snov) - Gravimetrična metoda

Ethanol as a blending component for petrol - Determination of dry residue (involatile material) - Gravimetric method

Ethanol zur Verwendung als Blendkomponente in Ottokraftstoff - Bestimmung des Trockenrückstandes (nichtflüchtige Bestandteile) - Gravimetrisches Verfahren

Ethanol comme base de mélange à l'essence - Détermination du résidu sec (produits non volatils) - Méthode gravimétrique

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EUROPEAN STANDARD
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prEN 15691

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English Version

**Ethanol as a blending component for petrol -
Determination of dry residue (involatile material) -
Gravimetric method**

Ethanol comme base de mélange à l'essence -
Détermination du résidu sec (produits non volatils) -
Méthode gravimétrique

Ethanol zur Verwendung als Blendkomponente in
Ottokraftstoff - Bestimmung des Trockenrückstandes
(nichtflüchtige Bestandteile) - Gravimetrisches
Verfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 19.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (prEN 15691:2021) has been prepared by Technical Committee CEN/TC 19 “Gaseous and liquid fuels, lubricants and related products of petroleum, synthetic and biological origin”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15691:2009.

It was originally prepared by CEN/TC 19’s Ethanol Task Force based on a regulated analysis method for neutral alcohol [1].

In comparison with the previous edition, based on a re-evaluation of the interlaboratory study the precision statement (Clause 10) has been replaced by the recalculated version. Following the same re-evaluation the scope of the method (Clause 1) has not been extended.

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1 Scope

This document specifies a procedure for the determination of dry residue in ethanol by gravimetric (desiccation) method in the range (10 to 25) mg/100 ml.

NOTE In an interlaboratory study [2] the method described has been tested at levels down to 3,5 mg/100 ml, but the precision appeared to be insufficient at such low levels.

WARNING — Use of this document can involve hazardous equipment, materials and operations. This method does not purport to address to all of the safety problems associated with its use. It is the responsibility of the user of this document to take appropriate measures to ensure the safety and health of personnel prior to the application of the document, and to fulfil statutory and regulatory restrictions for this purpose.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3170, *Petroleum liquids - Manual sampling (ISO 3170)*

3 Terms and definitions

For the purposes of this document, no specific terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

4 Principle

Dry residue is determined by the weighing of the residue left by evaporation of alcohol on a boiling water bath and drying in a drying oven.

Dry residue includes all matter that is non-volatile under specified physical conditions.

5 Apparatus

5.1 Evaporating dish (100 ml to 250 ml).

5.2 Boiling water bath.

5.3 Pipette, 100 ml, class A.

5.4 Oven, capable of being held at a temperature of $(103 \pm 2) ^\circ\text{C}$.

5.5 Desiccator, containing freshly activated silica gel (or equivalent desiccant) with moisture content indicator.

5.6 Analytical balance, capable of weighing with an accuracy of 0,1 mg.

6 Sampling

6.1 Preparation of samples

Unless otherwise specified in the commodity specification, samples shall be taken as described in EN ISO 3170.

Collect the samples in glass bottles. Samples shall be stored at room temperature prior to analysis.

6.2 Verification and quality control

It is recommended to prepare a sodium chloride solution with a content of 100 mg/l in ethanol from neutral ethanol free of dry residue and from an aqueous sodium chloride solution the content of which is 10 g/l. For example, 10 ml of the aqueous solution can be introduced in 1 l of this neutral alcohol without residue. This is a solution with a dry residue content of 10 mg/100 ml.

7 Procedure

Place clean dry evaporating dishes (5.1) into the oven for 30 min, then place them into the desiccator (5.5) for 30 minutes.

Use a tool to manipulate dishes, do not touch directly with fingers.

Accurately weigh, to the nearest 0,1 mg, the clean dry evaporating dishes (5.1) (M_0).

Pipette (5.3) 100 ml of sample or quality control and introduce respectively into the dishes. Place the dishes with sample on the boiling water bath (5.2) and allow to dry.

NOTE In general, it takes about two hours to evaporate the alcohol on the water bath.

Place the dishes in the oven (5.4) at $(103 \pm 2)^\circ\text{C}$ for 30 minutes and then transfer dishes with residue into a desiccator (5.5). Allow the dishes to cool for 30 minutes and then weigh, to the nearest 0,1 mg, the dishes with residue (M_1).

8 Calculation

The content of dry residue, D , expressed in mg/100 ml is given by:

$$D = M_1 - M_0 \quad (1)$$

where

D is the expression for dry residue,

M_1 is the mass, in mg, of the dish and residue after drying,

M_0 is the mass, in mg, of the clean dry dish.

9 Expression of results

Report the content of dry residue rounded to the nearest 1 mg/100 ml.